

WHAT IS CLAIMED IS:

1. A differential apparatus for transmitting torque from an output shaft of a driving source to two axle shafts while producing a rotational difference between the two axle shafts, the differential apparatus comprising:

a differential case coaxially and integrally joined with the output shaft.

2. The differential apparatus according to claim 1, wherein the output shaft and the differential case is a single and integral cast product.

3. The differential apparatus according to claim 1, wherein the driving source is a motor.

4. A differential apparatus, arranged between two axle shafts, for rotating the two axle shafts at different speeds or at the same speed, the differential apparatus comprising:

differential gears for connecting the two axle shafts to each other;

an output shaft member having a differential case portion for accommodating the differential gears and an output shaft portion integrally formed with the differential case portion from the same material; and

a driving source that supplies the output shaft member with torque.

5. The differential apparatus according to claim 4, wherein the driving source is a motor, the differential apparatus further comprising:

a motor case for accommodating the motor; and

two bearings that support the output shaft member in a manner rotatable with respect to the motor case, one of the

bearings being arranged on one end of the output shaft portion and the other one of the bearings being arranged on one end of the gear case portion opposite to the output shaft portion.

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6. The differential apparatus according to claim 4, wherein the output shaft member is a single cast product.

7. The differential apparatus according to claim 4,
10 wherein the output shaft member is made of cast iron.

8. The differential apparatus according to claim 4, wherein the two axle shafts are linked to two drive wheels of an industrial vehicle, respectively.